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Preparing FRESH TOMATOES for Market

Marketing Bulletin No. 19

United States Department of Agriculture

Tomatoes for fresh shipment are commercially produced in some 30 States in the Nation. The estimated value of tomatoes sold for fresh use was well over $146,000,000 in both 1959 and 1960. Ten States produce more than 80 percent of the tomatoes grown for fresh market, with two of these States— California and Florida—accounting for over 50 percent of the total. Texas ranks third in State production.

Varying climates throughout the United States make fresh tomatoes available every month of the year. In early spring, Florida, Texas, and California furnish most of the supply. During late spring months, principal shipping States are South Carolina, Georgia, and Texas. Summer supplies come from many States, representing practically every geographical section of the Nation. California tomatoes dominate early fall shipments, and Florida areas furnish most late Fall supplies. In winter months a large majority of domestic field grown tomatoes are produced in Florida, although the various climatic areas of California usually make tomatoes from that State available throughout the entire year.

Increasing quantities are imported each year from Mexico during winter and early spring, and some imports are received from the Caribbean area. In addition, supplies are supplemented to some extent during this period by greenhouse production, principally in the East North Central, Middle Atlantic, and Southern New England States.

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Preparing FRESH TOMATOES for Market

by W. W. Morrison, Marketing Specialist, Fruit and Vegetable Division, Agricultural Marketing Service

GROWING METHODS

Two widely different general systems of growing tomatoes are followed in the producing areas of the United States.

The usual practice in most sections is to allow the plant to develop naturally, spreading out and resting on the ground as it develops. The other system is to support each plant by a stake, or a trellis between stakes, to keep the plant and fruit off the ground, and thus produce a higher percentage of marketable fruit. Staked tomatoes are often pruned to limit the number of main stems, eliminate side branches near the plant base, and to control other unnecessary growth.

In recent years the shipment and sale of field-grown, so-called "Vine-ripe" tomatoes has increased rapidly. Most of the "Vine-ripe" production is grown on staked or trellised plants (in some areas called "pole-grown"). However, staking has long been the prevailing practice in the tomato producing districts in Tennessee, Louisiana, Indiana, Mississippi, and the southern portion of Ohio. Staking is now also common in parts of the Merced district of California, in the Palmetto and Manatee districts of Florida, the Yoakum district in Texas, the Chula-Vista—Oceanside, Santa Clara, and Oxnard districts of California, and is practiced to a limited extent in certain areas of Pennsylvania, Alabama, southern Illinois, and Kentucky.

Several California producers of "pole-grown" tomatoes report the cost of this growing system averages between $600 and $1,200 per acre, but are convinced that they are more than repaid in the very greatly increased yield of marketable tomatoes.

Greenhouse tomatoes have historically been grown on staked, or trellised, carefully pruned plants.[1] Staking or trellising (with special attention to growth structure of plants), whether greenhouse or field-grown, tends to eliminate much of the rough, ridged, and poorly shaped fruit that otherwise often appears on the first formed or lowest clusters, as well as many of the small, poorly colored or thin walled fruits usually found in extreme top clusters.

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[1] Farmers' Bulletin 2082, Commercial Production of Greenhouse Tomatoes.

COMMERCIAL VARIETIES

The choice of varieties is an important factor in successful tomato production and marketing. In the long established tomato growing sections, the value of varieties that are well adapted to each particular local climate and soil has been demonstrated through practical experience as well as varietal research. Therefore, with the exception of small experimental plantings to test new varieties for possible superiority and disease resistance, growers usually confine production to varieties which have proved their ability to produce superior market qualities in the particular area.

Since medium size, smooth, well-shaped tomatoes are generally in greatest market demand, varieties which normally produce this type of fruit are usually popular. Tomatoes larger than 3½ inches in diameter are often ridged over the shoulders or are otherwise misshapen, and seldom sell for a price as high as those that range from 2¼ to 3¼ inches in diameter.

Varieties should not be mixed in containers, especially varieties that ripen with different types of red color. Differences in color are not apparent at the "mature green" stage but can be quite unattractive, and hence penalized in price, when the tomatoes ripen. If two varieties have similar shape and develop approximately the same shade of red, a mixture may not be objectionable.

Experiment stations and seed companies are continually breeding new varieties or improved strains of existing varieties. As some of these new introductions are tried and their superiority for certain areas are proved, they frequently replace older, well-known varieties.

HARVESTING

When acreage is small a grower and members of his family may easily be able to harvest a tomato crop, but a producer with large acreage must hire crews of pickers to work under the direction of himself or a foreman selected for the specific purpose. In many important producing areas, particularly in the South and West, many of those employed for picking tomatoes are migratory laborers.

Some growers pay a uniform daily wage, while others prefer to pay on the basis of the quantity picked. Under the daily wage system pickers are apt to follow directions more carefully in determining the proper stage of maturity for picking. Pickers paid on the basis of quantity are generally prone to sacrifice judgment of maturity for picking speed unless they are very closely supervised.

Careful handling in harvesting tomatoes is often not given the thought and emphasis it deserves. When tomatoes are picked at a green stage, slight abrasions or bruises caused by rough or careless handling are barely noticeable during the sorting and packing process, but they are likely to appear as unsightly brown or black spots when the fruit reaches the market. These almost-invisible injured areas

also provide easy entrance for decay organisms. Since profits depend on market quality as well as on the quantity shipped, careful handling pays dividends.

Picking the Fruit

The proper stage for picking tomatoes depends primarily on the intended maturity development at time of shipping, which in turn may be largely dependent on the needs and desires of the market purchaser in relation to arrival condition and color.

Tomatoes reach a stage of maturity on the vine, while the fruit is still entirely green in color, that will insure the later development of desirable color. This is known commercially as "mature green." At this stage the tomato is almost fully grown and the interior ripening processes have started. Tomatoes should never be picked prior to this minimum maturity.

If the purchaser needs time for repacking, or for gradual unhurried sale, he may want tomatoes in the "mature-green" stage that he can develop to the desired degree of color in ripening rooms equipped with controlled temperature and humidity. "Mature-green" tomatoes have for years made up most long distance tomato shipments.

Judging the maturity of green tomatoes is difficult, and many pickers are inclined to depend on size in determining proper maturity rather than on more meaningful indications. Tomatoes picked prematurely because of faulty picker judgment or because the shipper is "crowding" the season—often shrivel before they attain normal color.

The United States Standards for Fresh Tomatoes state that a tomato is considered mature when the contents of two or more seed cavities have developed a jelly-like consistency and the seeds are well developed. As a practical test, the tomato should be cut crosswise of the seed cells with a sharp knife. If the pulp surrounding the seeds has become jelly-like and the seeds give way before the edge of the knife and are not cut, the tomato is considered mature enough for shipment as "mature-green." The size of the fruits is never a proper guide for maturity. Before issuing instructions to a picking crew, a foreman should cut a number of tomatoes and then base his instructions on those external characteristics which appear to be the most practical maturity guides. For some varieties, the presence of light color or a whitish area on the blossom end of the fruit is considered a fairly reliable maturity index.

With close supervision and proper cooperation between the picking foreman and the packing house manager, most of the immature tomatoes can be left on the vines until fully developed.

Tomatoes are easily separated from the vine, even somewhat before the "mature-green" stage. As a tomato is nearing maturity a layer of hard-walled or corky cells develops on the outer rim of the stem and the union with the fruit, and extends inward. After the tomato is picked this layer appears as a brownish ring in the stem-eye.

In sorting operations the width of this ring is sometimes used as an indication of the maturity of green tomatoes, although the ring width may vary with variety or climate and should be used only in comparing similar stock from comparable areas.

Most growers of greenhouse-grown tomatoes and some who ship "vine-ripe" field-grown stock follow a different practice in picking than do a great majority of growers. Instead of twisting the tomato from the vine, they clip the stem just above the calyx, leaving the calyx leaves and a very short portion of stem attached to the tomato. The condition of the calyx leaves can then be used as a guide in judging freshness of the fruit. Some shippers believe the presence of the stem and calyx gives less opportunity for entrance of disease organisms, and there is some evidence that tomatoes with stems attached lose moisture more slowly and may keep longer than those with stems removed. This practice does enhance the appearance of well colored tomatoes if the calyx leaves remain reasonably fresh and green, and fruit picked by this method usually demands an increased price, offsetting the increased picking cost.

At the beginning of the season vines should be picked at least once or twice a week, depending on weather, and should be picked more frequently as the season progresses. In hot weather picking should be every other day, or possibly even every day under conditions which cause very rapid ripening.

Tomatoes to be shipped in the "vine-ripe" or "pink" stages should be picked from the fields very frequently to avoid the danger of soft or overripe fruit.

Trend Toward Increased Maturity

Tomatoes grown near to markets are usually picked in the "turning," pink or red stages. The bulk of the supplies from New Jersey, Michigan, Indiana, Pennsylvania, Ohio and Arkansas, and part of those from Illinois, Virginia, Maryland and Washington, as well as various other States such as Mississippi and Tennessee, are picked in these stages.

Also in several growing areas located extremely long distances from most markets, shipment of "vine-ripe" or "pink" tomatoes is now becoming more and more popular. These tomatoes have better flavor than those picked in the "mature-green" stage, and fast long-distance truck shipments make it possible to get them to market rapidly.

The industry term "vine-ripe" includes color stages from "breaking"—slight beginning pink color at the blossom end tip—through full red color. Fully red tomatoes are at present shipped only to markets near production areas.

"Vine-ripe" tomatoes are often delivered by refrigerated trucks to markets several hundred miles from shipping point the morning after harvest. They can be shipped the 3,000 miles from California to New York City in slightly over 100 hours. Thus rapid transportation makes increased "vine-ripe" production both possible and probable.

Growing areas best known for long-distance "vine-ripe" shipments are the Immokalee and Delray, Florida, sections and the Merced, Santa Clara, Oxnard, and Chula Vista—Oceanside districts in California. Some "vine-ripe" stock is also shipped from Texas and from a few other less important Florida districts.

Many receivers in the markets find that tomatoes harvested in the "pink" or "vine-ripe" stage can be handled more economically than those harvested when "mature-green." A large percentage of such tomatoes are sufficiently well colored on reaching the market to be distributed with little delay or rehandling. With less of the fruit to be ripened at the market and a shorter ripening time involved, there is less opportunity for disease development. Loss from immature tomatoes which fail to color properly is also eliminated. These factors should produce a more acceptable product and thus benefit both shippers and growers.

Picking Containers and Field Containers

Many types of picking containers are used in the various tomato growing sections. These vary from metal buckets to 60 to 80 pound field boxes, and include ½ bushel, ¾ bushel, and bushel baskets, ⅝ bushel hampers, apple boxes, lug boxes of various sizes, wooden beer cases, and others.

Regardless of the type and size of picking containers used, the interiors should be free from sharp edges, protruding points of metal or wood, or rough surfaces. Some progressive growers in several States pad bottoms and sides of picking containers with corrugated paper, burlap or other materials to avoid bruising or rubbing injury to the fruit.

Every effort should be made to eliminate small skin breaks, bruises and abrasions caused by sharp or rough surfaces. These may not be noticed at time of packing, but allow entrance of disease organisms which cause trouble later for both receivers and consumers.

In many areas filled picking containers are emptied into field crates, boxes or baskets in which tomatoes are moved to the packing sheds. In other locations filled picking containers are transported directly to packing sheds, thus eliminating the necessity for transfer of the fruit from picking containers to field containers. A few growers in California and Texas haul tomatoes to the packing sheds in bulk in padded pickup trucks or small trailers. Whatever the method of field to packing house delivery, the best tomatoes will be those which are the least subject to bruises, cuts and abrasions.

PACKING HOUSES

In most producing areas, sorting and packing fresh tomatoes on the farm has gradually given way to preparation for shipment in centralized packing houses. Farm packing is now generally confined to certain relatively minor production areas where markets are rather

near growing districts. Sorting and packing equipment on small farms is often unnecessarily crude, inadequate, poorly located, and frequently conducive to careless handling methods which are damaging to the product.

Much of the definite improvement in appearance and quality of fresh tomatoes offered to consumers can be credited to the increasing volume being prepared for shipment by experienced employees, in machine-equipped central packing houses. Practically all tomatoes from California, Florida, Texas, Tennessee and Mississippi and from many less important producing States are the product of central packing houses.

Regardless of its size or capacity, a well-constructed and efficient central packing house should provide for adequate ventilation, good light, and ample working and storage room. The floor should be at the height of conventional truck floors. This is approximately the height of refrigerator car floors and is thus also the desirable floor height for houses located on a railroad siding.

An abundance of light, either natural or artificial, is needed for efficient color separation and for proper removal of defective fruit.

PACKING HOUSE EQUIPMENT

Most modern packing houses are equipped with some, or most, of the specialized machinery for handling a large volume of tomatoes, such as washing, drying and waxing equipment, belt or roller conveyors on which the fruit is sorted and transported to desired locations, sizers and re-sizers, automatic weighing and package-filling devices, lidding machines for wooden lugs and closing machines for other package types. The amount and type of machinery varies according to the particular operation, the need, and the shipper's assessment of the benefits in relation to the cost.

Great care should be taken in the installation and operation of such equipment to minimize mechanical injury which may not be detected or may appear negligible at time of packing, but which may cause later discoloration and be the source of infection by serious disease organisms.

Washing and Waxing Equipment

In areas of heaviest commercial production tomatoes are usually washed to improve appearance and to remove dust, soil, or sand that might cause damaging abrasions. Where used, the washer is usually the first machine in the "line." There is generally a hopper into which tomatoes from field containers are poured by hand or by an automatic dumping machine. From the hopper the tomatoes are moved by roller conveyor through a tank or under spray jets, or both.

Various trade-named washing solutions are sometimes used in the washing tanks. When such solutions are used the tomatoes are rinsed with a clear water spray as they are conveyed from the tank. Very frequently a chlorine solution is added to the water in tanks or sprays as a decay inhibitor. Wash-

ing tomatoes prior to sorting enables sorters to detect and remove many defective specimens which might otherwise be missed.

Where tomatoes are waxed, they move from the washer to the waxing machine. As the tomatoes move through this process a very thin coating of wax is applied by bath emulsion, spray or brushes. Waxing delays dehydration and shriveling and usually improves appearance of the fruit. In most installations the washing and waxing operations are followed by a drying process accomplished by fans or brushes, or both, to remove most of the moisture from the fruit before it reaches the sorters.

The tomatoes move from the washing-waxing-drying machines to the sorting unit, which may consist of either roller or belt conveyors (fig. 1). Usually from 3 to 5 or more sorters work on either side of this unit and remove defective specimens as well as make other segregations, when required, as the fruit passes before them.

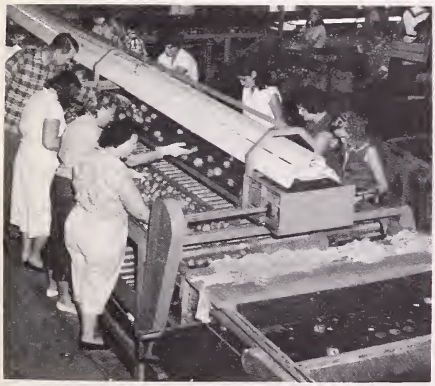

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FIGURE 1.—*From drying unit (left) tomatoes move through sorting process prior to sizing (right).*

Sizing Machines

Most packing houses that ship "mature-green" tomatoes in considerable volume, as well as some whose principal product is "vine-ripes" or "pinks," use sizing machines. However, many "vine-ripe" packers feel sizing machines may damage fruit which is well advanced in maturity, and thus prefer to have sorters or packers size the fruit by eye.

The type of sizing machine most commonly used is shown in figure 2. The construction of sizing belts varies with different manufacturers, but most machines are equipped with rubber covered or composition belts.

As tomatoes reach the end of the sorting unit they start over the sizing unit. A typical sizing unit consists of a series of three wide continuous belts which are perforated with round holes at regular intervals. The diameters of the holes in the three belts increase consecutively by about one-fourth inch. The first removes the smallest tomatoes, the second the next larger size and the third a still larger size. The largest tomatoes which do not pass through any of the holes, pass off the end of the third belt to a separate size classification.

Re-sizers, consisting of an additional series of smaller sizing belts with holes one size smaller than those in the belt through which the fruit has just passed are used in some sizing installations to further refine the sizing process. With either system the tomatoes are conveyed on belts carrying the sep-

N-26335

FIGURE 2.—*Tomato sizing machinery in operation.*

arate sizes to packing bins; to continuous belts from which packers select for placement in shipping packages; or direct to shipping containers if fruit is shipped without wrapping or placement packing.

Sorting and Packing Bins

Though packing house machinery is widely used in most of the important shipping areas, many shippers either have not installed continuous belt systems or use the method of bin segregation for sizes, and thus packing bins are essential. Also, where no conveying machinery is used, as is the case in some of the less important producing States, both sorting and packing bins are highly important equipment.

A satisfactory design for packing and sorting bins is shown in figure 3. Packing bins are about 6 inches deep at the back, 30 to 36 inches wide, and 36 to 48 inches from back

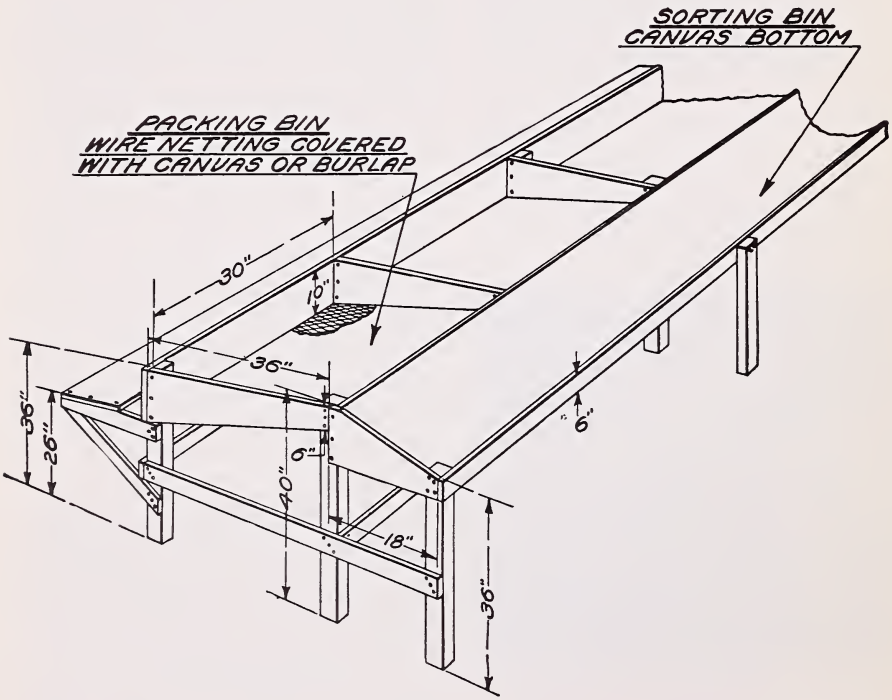

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FIGURE 3.—*Type of sorting and packing bins commonly used where bin grading is done.*

to front, depending on the pitch of the bin floor toward the packers. The bottom of the bin is usually made of wire netting of about 1 inch mesh, stretched tightly and covered with burlap or canvas. Sorting bins are commonly about 18 inches wide and 6 inches deep, with canvas bottom. If tomatoes are sorted directly from field containers, a bench to hold containers replaces the sorting bin.

PACKING HOUSE OPERATION

Competent, careful supervision is the prime necessity for a successful packing house operation. The manager or foreman in charge should be thoroughly familiar with the standards under which the tomatoes are to be shipped, as well as the various methods of packing or filling packages. He should be able to train employees in sorting and packing as well as keeping a sharp eye out for improper work methods. One or two employees who do not follow the required standards may cause substantial loss in money and shipper reputation.

Receiving the Fruit

An experienced employee should have charge of receiving the fruit from growers. When tomatoes are bought at a stated price per field crate, he should make the necessary deductions for poorly filled crates, or improperly picked stock. In some producing sections growers are usually paid on a completed shipping package basis. If the packing house is operated on a cooperative basis, each lot must be tagged to show the grower's name and the number of packages. As the lots are packed for shipment, a statement of number of packages of each grade and size is added and the tag is sent to the office for the permanent record. Probably the most important duty of the receiver is to persuade growers to insist on proper care in picking and handling. If carelessness in these operations is allowed, the cost of sorting is increased and blemished or immature fruit may slip into the shipments.

Where conveyors are not used for receiving field containers, most packing houses use clamp or platform hand trucks or ordinary multipurpose hand trucks to move tomatoes from the unloading platforms to washers or sorting units. Such trucks are also often used to move packed containers to the loading platform, although most packing houses are equipped with conveyors for this purpose.

Sorting

Tomatoes are hand sorted for market quality and for color separation. They are also sorted for size where sizing machines are not used. In some instances, particularly where "pinks" or "vine-ripes" are being packed, the same group of sorters may be responsible for reasonably accurate color segregation, and for approximate sizing for the various packs, as well as for removal of under-grade fruit (fig. 4). In other situations one

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FIGURE 4.—*Sorting "vine-ripes" for quality, color and size from belt type conveyor.*

group sorts for grade while others sort for color and size, or in some cases packers, rather than sorters, may select the sizes. If "mature-green" stock only is being packed, sizing is usually by machine with sorters simply removing defective stock.

The sorting unit may be either the roller-conveyor or wide belt type. Roller-conveyors are usually considered more advantageous because tomatoes are turned as they move along the unit. This enables sorters to see all parts of the fruit. On the other hand, some shippers believe there is considerably less chance for skin abrasions when belts are used. With either type of equipment, sorters should be located along the sorting unit according to their ability, with the most experienced and dependable members of the crew responsible for the final inspection.

Sorters should be given thorough instructions about the requirements of the grades being packed, and shown the various types of defective and diseased tomatoes which must be removed. In addition, their work should be closely checked to insure that instructions are being followed. One type of defective tomatoes is shown in figure 5.

Packing and Packages

Only a few years ago the method of packing individually wrapped tomatoes in lug-boxes was generally used throughout the areas of heaviest commercial shipment. While some tomatoes are still wrap-packed in this manner, the largest majority of "mature-green" shipments from the major producing districts are now "jumble-packed" in 60-pound wire-bound crates, 40-pound fiberboard boxes, or Los Angeles lugs. Various other type packages, including 40-pound wire-bound crates, are also used, with the choice of package largely in accordance with the preference of the buyer. The fruit in these jumble-packs is not wrapped or placed. Containers are usually stamped to indicate the

AMS–7700

FIGURE 5.—*Tomatoes showing deep growth cracks are not allowed in first-grade stock.*

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FIGURE 6.—*Large sized "vine-ripe" tomatoes packed in 2 layer flat.*

size the tomatoes would "wrap-pack" in a Los Angeles lug. These designations, such as 5 x 6, 6 x 6, etc., as used for tomatoes wrap-packed in lug boxes, have no meaning as applied to bulk containers except to those familiar with the tomato industry, who understand the practice. A much clearer, more understandable, and more specific method of designating sizes for jumble packs would be the use of minimum, or minimum and maximum diameters or numerical counts as applied to various weight packages.

A large percentage of "mature-green" bulk-packed tomatoes are repacked at or near receiving market centers in small consumer size packages variously called "trays," "tubes," "boats," or "sleeves." In some cases such consumer size packages are packed at shipping points and shipped in larger "master" containers.

Shipments of so-called "vine-ripe" or "pink" tomatoes in sizes 6 x 6 and larger are usually place-packed—mostly not wrapped, some wrapped—in 2-layer flats, either wood or fiberboard. Smaller sizes are place-packed 3 layers—in lugs (figs. 6 and 7). Some shippers place-pack 10-pound or 8-pound fiberboard boxes called consumer packs.

In areas where fruit is mostly farm-packed in pink and nearly ripe stages by a grower or his family members, some climax, splint and fiberboard baskets are used as marketing containers. These are usually place-packed without wrapping.

Packages for tomatoes are in a period of change and trial, with wire-bound crates and fiberboard boxes presently leading for the bulk packs which now constitute a great majority of shipments. Other packages of minor importance from a national standpoint, but of considerable importance in local producing areas, are the western peach box, the $\frac{5}{8}$ bushel hamper, the $\frac{1}{2}$— and 1—bushel round stave baskets and various others.

BN–14087X

FIGURE 7.—*Smaller sized "vine-ripes" packed 3 layers in lug.*

Marking Packages

It is general trade practice to stamp packages with a size designation and shipper's name and address. State laws may require these and other markings such as grade, and net weight or numerical count.

Under the provisions of the Federal Food, Drug and Cosmetic Act, a food is considered misbranded if in package form unless labeled to show (1) the name and place of business of the packer or distributor, and (2) an accurate statement of the quantity of the contents in terms of weight, measure, or numerical count. For this reason, such information is shown on all tomato packages entering interstate commerce.

Many tomato shippers use brand names, labels, or printed containers to identify their particular products.

Closing Packages

In the larger packing houses, wooden lugs or other boxes requiring nailing are usually closed by automatic lidding machines.

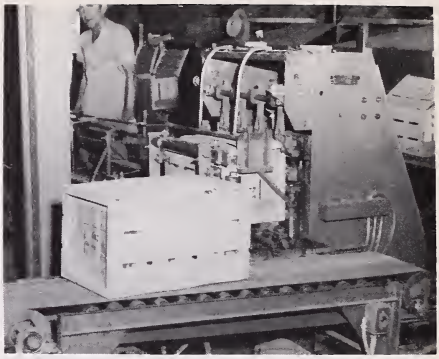

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FIGURE 8.—*Electrically operated closing machine for wirebound crates.*

Where automatic machines are not used, hand nailing in manually operated lidding presses is common practice.

Cartons are closed by machines which apply both glue and mild pressure after closure, or by the hand placement of a top section which fits over the filled carton. Wirebound crates are often closed by specially adapted machines, but are also frequently closed by hand operations (fig. 8). Where considerable volume is handled labor-saving machinery is both practical and economical.

LOADING AND SHIPMENT

Fresh tomatoes from most producing areas are now shipped principally by truck, even though extremely long distances are frequently involved.

Trucks are usually loaded to capacity in any manner that will utilize the space most efficiently without damage to the product.

Refrigerator cars are used for rail transportation. In loading cars, the packages are arranged to minimize transit shifting, with package placement such as to permit proper air circulation throughout the load.

Cars are loaded for center bracing or in "through loads" (loaded the complete length of car) in varying patterns, depending on the type and size of shipping containers and the volume of load desired. Wirebound 60-pound crates are usually loaded 7 rows lengthwise, 3 to 5

layers, with the number of crates ranging from 399 to 665 (fig. 9). Loads of fiberboard cartons of 40-pound capacity are generally arranged in 4, 5, 7, or 8 rows, from 4 to 7 layers, with from 600 to 800 cartons. The usual load for standard tomato lugs is 5 rows crosswise, 5 to 7 layers, and contains from 650 to 780 lugs.

The newer type temperature controlled, mechanically refrigerated cars contain considerably more loading space than the ordinary refrigerator cars with ice bunkers. For instance, as many as 1,800 two layer flats (the package widely used for "vine-ripe" stock) may be loaded in the mechanically refrigerated cars compared with a maximum 1,400 load for bunker cars.

Some excellent patented loading methods using special bracing devices designed to largely eliminate package shift or damage are used by various shippers.

N–36501

FIGURE 9.—*Loading refrigerator car with 60-pound wirebound crates. Upper layer crates are staggered to prevent shifting and in other layers crates are spaced for air circulation.*

GRADES AND INSPECTION

Much of the wholesale trading in fresh tomatoes is conducted on the basis of United States Standards. The Standards define the requirements of the various grades and prescribe markings that should be shown on the packages. Copies of these standards are available for distribution by the Agricultural Marketing Service, United States Department of Agriculture.

The Federal-State shipping point inspection service is available in practically all important commercial tomato producing areas. Licensed Federal-State inspectors will inspect a shipment for an established fee and issue a certificate showing the quality, condition, color classification, grade and size of the fruit, together with other facts, such as type of pack, kind of containers used and other pertinent information (fig. 10). Federal inspection is also available in the larger market cities and adjacent locations.

The general use of standards by growers and shippers has many advantages. The standards serve as a common language between the shipper and the buyer and provide a basis of quoting sales which is generally understood throughout the produce industry. Inspection at shipping point under established standards tends to prevent unjustified rejections at destination in the case of sales made f.o.b. usual terms. Better production methods are encouraging by the use of standards, as produce of the higher grades

N–36497

FIGURE 10.—*Licensed Federal-State inspector examining tomatoes from wirebound crates prior to lot certification showing grade in terms of quality and condition.*

usually sells for a premium over that of the lower grades or field-run fruit. The presence of large quantities of ungraded or poor quality stock on the markets adversely affects the sale of good quality stock.

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